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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,529	08/13/2001	Stanley A. White	H0002451-US	7430

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EXAMINER

NGO, CHUONG D

ART UNIT PAPER NUMBER

2124

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/928,529	Applicant(s) WHITE, STANLEY A.	
	Examiner Chuong D Ngo	Art Unit 2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2 pages</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 4-6, 13-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 4, the operations of and what are included in the first and second stages are indefinite.

As per claim 13, the claim is directed an apparatus but fails to recite any structural limitation. The physical elements and their structural relationship in the square root extractor are thus unclear.

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 24-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims clearly recite a computer-related process for computing the squared root of an input signal in accordance with mathematical algorithms. In order for such a claimed computer-related process to be statutory, the claim must includes either a step that results in a physical transformation outside the computer or a limitation to a practical application or requires a specific computer to implementing the claimed process. However, it is clear from the claims that the claims merely recite steps for data computation and manipulation in

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performing a mathematical function. The input is a number and output is also a number. The claims fail to recite any step that results in a physical transformation outside the computer or a limitation to a practical application, or that requires a specific computer to implementing the claimed process. Accordingly, claims 24-27 are clearly directed to a non-statutory subject matter.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 24 and 26 rejected under 35 U.S.C. 102(a) as being clearly anticipated by the "Square-Rooting Methods", Chapter 21, XP-002253877 (877).

The 877 disclose on page 355 the same method for extracting square root as claimed.
(see the two equations on line 15 and 16).

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7. Claims 13-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the "Square-Rooting Methods", Chapter 21, XP-002253877 (877).

It is noted that the 877 does not specifically disclose an apparatus for implementing the two equations on page 355, lines 15 and 16. However, a person of ordinary skill in the art would have found it obvious to construct an apparatus as claimed to implementing the two equations since a construction that directly implement the two equations would result in the same or equivalent circuit as claimed.

8. Claim 13 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Malinowski (4,949,296).

Malinowski discloses in figure 1 a square root extractor including multiplying (multiplier), summing (adders), scaling (shifter), and delaying (registers) functions as claimed.

9. Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (6,223,194) in view of "Square-Rooting Methods", Chapter 21, XP-002253877 (877).

Koike discloses in figure 1 an apparatus including a sign extractor (5,6), a square root extractor (7), and a sign restorer (8) as claimed. It is noted that Koike does not specifically disclose how the square root extractor is derived. However, the 877 disclose on page 355 a method for extracting square root that when directly implemented would result in a square root extractor or the equivalents as claimed (see the two equations on line 15 and 16). It would have been obvious to a person of ordinary skill in the art to implement the square root

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extractor by the teaching of the 877 to eliminate divisions operations and/or lookup table, and thus to decrease the circuitry and increase the speed of processing.

10. Claims 1,2,7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (6,223,194) in view of Lee et al. (5,818,743)

Koike discloses in figure 1 an apparatus including a sign extractor (5,6), a square root extractor (7), and a sign restorer (8) as claimed. It is noted that Koike does not specifically disclose a delay to impose a delay on the sign ($\text{sgn}(e_n + v_n)$). However, by the teaching of Lee et al. in figures 8 and 10, it would have been obvious to a person of ordinary skill in the art to provide a delay on the sign so that the sign and the extracted square root are provided to the sign restorer (8) at the same time in order to reduce spurious transitions, and thus to reduce power consumption.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (6,223,194) in view of Lee et al. (5,818,743) as applied to claims 1 and 2 above, and further in view of Mizutani et al. (5,216,628).

Koike also does not specifically disclose the magnitude being generated by selecting one of the input or its complement that has a positive sign. However, Mizutani et al. discloses in figure 2b a conventional circuits for generating a magnitude of a signal (output from 21) by complementing the signal (by 22) and selecting either the signal or its complement to provide the magnitude as claimed. Thus, a person of ordinary skill in the art would have found it

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obvious to employ a conventional circuit in figure 2b of Mizutani et al as the absolute value calculator (6) in for generating the magnitude of input signal.

12. Claim 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (6,223,194) in view of Lee et al. (5,818,743) as applied to claims 1 and 2 above, and further in view of Malinowski (4,949,296).

Koike also does not specifically disclose the structure of the square root extractor. However, Malinowshi discloses in figure 1 a fast square root extractor including multiplying (multiplier), summing (adders), scaling (shifter), and delaying (registers) functions as claimed. Thus, it would have been obvious to a person of ordinary skill in the art to employ a fast square root extractor as taught by Malinowshi in order to generate the square root on a signal in a reduced time. Further, since claim 4 fails to clearly define the claimed first and second stages, any separate part in figure 1 of Malinowshi would read on these stages.

13. Claim 4-8 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike (6,223,194) in view of Lee et al. (5,818,743) as applied to claims 1 and 2 above, the "Square-Rooting Methods", Chapter 21, XP-002253877 (877).

Koike also does not specifically disclose how the square root extractor is derived. However, the 877 disclose on page 355 a method for extracting square root that when directly implemented would result in a square root extractor or the equivalents as claimed. (see the two equations on line 15 and 16). It would have been obvious to a person of ordinary skill in the art to implement the square root extractor by the teaching of the 877 to eliminate divisions

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operations and/or lookup table, and thus to decrease the circuitry and increase the speed of processing.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong D Ngo whose telephone number is (703) 305-9764. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703) 309-9662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

07/23/2004



Chuong D Ngo
Primary Examiner
Art Unit 2124

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